Notice of Allowability	Application No.	Applicant(s)	
	10/717,268	BRCKA ET AL.	
	Examiner	Art Unit	
	Rakesh K. Dhingra	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *RCE dated 2/28/07*.

2. ☒ The allowed claim(s) is/are *25,30-32,34-38,40 and 41*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *5/24/07* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Rakesh K Dhingra

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph R. Jordan on 5/11/07 and 5/24/07.

The application has been amended as follows:

In the Claims

Claim 25 (Currently Amended): An ICP source for producing a high-density inductively coupled plasma in a vacuum chamber for the plasma processing of a semiconductor wafer therein, the source comprising:

a dielectric chamber wall having a vacuum side and an atmospheric side and formed of at least one section of dielectric material;

a peripheral ionization source including an RF antenna on the atmospheric side of the dielectric chamber wall and a shield on the vacuum side of the dielectric chamber wall;

the peripheral ionization source having a segmented configuration of alternating high-radiation and low-radiation segments arranged in a ring and positioned to couple power through the dielectric chamber wall into the chamber to produce a plasma having an annular, alternating, high and low power distribution;

the shield having alternating high-transparency and low-transparency sections arranged in a ring and positioned relative to the antenna to facilitate the coupling of RF energy from the antenna through the dielectric chamber wall and the shield and into the chamber in the annular, alternating, high and low power distribution, the high-radiation segments including the high-

transparency sections of the shield and the low-radiation segments including the low-transparency sections of the shield; and

the high-transparency sections of the shield each having a plurality of slots therethrough oriented relative to the antenna to facilitate the inductive coupling through the high-transparency sections, and the low-transparency sections of the shield being solid electrically conductive ~~substantially more solid than the high-transparency~~ sections with no slots to impede inductive coupling there-through ~~the low-transparency sections~~ [.];

the RF antenna has a segmented configuration arranged in a ring that includes high-efficiency sections formed of small cross-section conductors that provide concentrated antenna current paths close to the dielectric chamber wall and low-efficiency sections formed of relatively large cross-section conductors that provide distributed antenna current paths, whereby stronger magnetic fields are produced adjacent the high-efficiency sections of the conductor than adjacent the low-efficiency sections of the conductor; and

the high-efficiency sections of the antenna are aligned with the high-transparency sections of the shield to form the high-radiation segments of the peripheral ionization source and the low-efficiency sections of the antenna are aligned with the low-transparency sections of the shield and form the low-radiation segments of the peripheral ionization source;

Claim 26-29: Cancelled

Claim 30. (Currently Amended) The ICP source of claim [26] 25 wherein:

the dielectric chamber wall includes a plurality of discrete pieces of dielectric material, one within each of the high-radiation segments of the peripheral ionization source between and aligned with a high-efficiency section of the antenna and a high-transparency section of the shield.

Claim 33. Cancelled

Claim 39. Cancelled

Allowable Subject Matter

Claims 25, 30-32, 34-38, 40 and 41 allowed.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claim 25: Prior art (US Patent No. 6,273,022 – Pu et al) does not teach claim limitation interalia, "the RF antenna has a segmented configuration arranged in a ring that includes high-efficiency sections formed of small cross-section conductors that provide concentrated antenna current paths close to the dielectric chamber wall and low-efficiency sections formed of relatively large cross-section conductors that provide distributed antenna current paths, whereby stronger magnetic fields are produced adjacent the high-efficiency sections of the conductor than adjacent the low-efficiency sections of the conductor" in the context of remaining limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rakesh Dhingra

Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763